

WHAT IS CLAIMED IS:

1. An optical system, comprising
a beam splitter;
a first optical device located adjacent a first side of the beam splitter;
a second optical device located adjacent a second side of the beam splitter;
a third optical device located adjacent a third side of the beam splitter and opposite the second optical device; and
a fourth optical device located adjacent a fourth side of the beam splitter and opposite the first optical device,
wherein a beam of light patterned by a reticle before entering the first optical device is folded an even number of times before entering the fourth optical device.
2. The optical system of claim 1, further comprising:
a baffle plate located adjacent the fourth side of the beam splitter before the fourth optical device, the baffle plate substantially preventing scattered light generated within the beam splitter from entering the fourth optical device.
3. The optical system of claim 2, wherein the baffle plate comprises an opaque shield that is used to substantially reduce an effect of the stray light in the optical system.
4. The optical system of claim 1, wherein the second optical device comprises an aspheric mirror and a plurality of lenses located between the aspheric mirror and the beam splitter.

5. The optical system of claim 1, wherein the fourth optical device comprises a plurality of lenses located in a light path between the beam-splitter and a substrate.

6. The optical system of claim 1, wherein the first optical device comprises a plurality of lenses located in a light path between the reticle and the beam splitter.

7. The optical system of claim 1, wherein the third optical device comprises a substantially flat fold mirror.

8. The optical system of claim 1, wherein the third optical device comprises a fold mirror having an optical power.

9. The optical system of claim 1, wherein the beam splitter comprises:

- a first cube;
- a second cube; and
- a spacer plate positioned between the first and second cubes.

10. The optical system of claim 9, wherein an offset created by the light passing through the beam-splitter varies corresponding to a width of the spacer plate.

11. The optical system of claim 1, further comprising a quarter wave plate positioned between the beam splitter and at least one of the first, second, third, or fourth optical systems.

12. In an optical system, a method comprising:
 - (a) directing light patterned using a reticle into a beam splitter using a first optical device;
 - (b) redirecting light from the beam splitter toward a second optical device;
 - (c) reflecting light from the second optical device, through the beam splitter, and onto a third optical device that is positioned opposite the second optical device;
 - (d) reflecting light from the third optical device into the beam splitter; and
 - (e) redirecting light reflected by the second optical device through the beam splitter onto a fourth optical device positioned opposite the first optical device.
13. The method of claim 12, wherein the first optical device comprises one or more lenses.
14. The method of claim 12, wherein the second optical device comprises an aspheric mirror and one or more mirrors between the aspheric mirror and the beam splitter.
15. The method of claim 12, wherein the third optical device comprises a substantially flat fold mirror.
16. The method of claim 12, wherein the third optical device comprises a fold mirror having an optical power.
17. The method of claim 12, wherein the fourth optical device comprises one or more lenses between the beam splitter and a substrate.

18. The method of claim 12, further comprising blocking backscattered light using a fifth optical device positioned between the beam splitter and the fourth optical device.

19. The method of claim 12, further comprising blocking backscattered light using a fifth optical device positioned in the beam splitter.

20. The method of claim 12, further comprising placing a polarizing optical device between the beam splitter and at least one of the first, second, third, or fourth optical devices.